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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,563	12/04/2003	Alexander Khain	25865	5468
20/529	7590	03/20/2008		
NATH & ASSOCIATES 112 South West Street Alexandria, VA 22314			EXAMINER KIM, CHRISTOPHER S	
			ART UNIT 3752	PAPER NUMBER
			MAIL DATE 03/20/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/726,563

Applicant(s)

KHAIN ET AL.

Examiner

Christopher S. Kim

Art Unit

3752

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-84 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4, 8, 11-13, 20, 22, 24, 26, 30, 32-35, 44 and 47-82 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5-7, 9, 10, 14-19, 21, 23, 25, 27-29, 31, 36-43, 45, 46, 83 and 84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-848)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/31/04, 4/29/05, 3/6/08
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I, Species C (figure 6C), Species b (figures 15b), Species A2, Species B2, Species C1, Species D4 and Species E2 in the replies filed on September 12, 2007 and December 20, 2007 are acknowledged. The traversal is on the ground(s) that, based on the disclosure, an apparatus which does not include a chamber cannot provide particulate seeding elements having predetermined size in a predetermined amount. This is not found persuasive because the method claims fail to require a chamber. Applicant is required to identify, in the specification, disclosure indicating that an apparatus which does not include a chamber cannot provide particulate seeding elements having predetermined size in a predetermined amount.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 2, 4, 8, 11-13, 20, 22, 24, 26, 30, 32-35, 44, 47-82 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention and/or species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the replies filed on September 12, 2007 and December 20, 2007.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 3, 5, 6, 7, 9, 10, 14-19, 21, 23, 25, 27-29, 31, 36-43, 45, 46, 83, 84 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1 and 23 recite, "...determining a size distribution of water droplets in said portion of the atmosphere..." The disclosure does not appear to teach how to determine a size distribution of water droplets in a portion of the atmosphere.

Claims 1 and 23 recite, "...seeding elements..." The specification teaches that seeding elements are particulate material and/or water droplets, but the specification does not appear to identify any specific particulate material. For one of ordinary skill to determine the specific particulate material that would comply with the electrical charging requirements of applicant's invention would constitute undue experimentation.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 3, 5, 6, 7, 9, 10, 14-19, 21, 23, 25, 27-29, 31, 36-43, 45, 46, 83 and 84 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 23 recite, "...by using a collision model..." but the claim fails to provide any use steps.

Claim 36 recites, "...wherein the seeding elements have a spread of sizes ranging from sub-micron to several micron sizes." The recitation "sub-micron" defines a size of less than one micron, but it is uncertain what size is being defined by "several micron."

Claim 41 recites the limitation "collision efficiency" in line 2. There is insufficient antecedent basis for this limitation in the claim. The claim fails to indicate how the collision efficiency is determined. Limiting "collision efficiency" using the specification would be improperly importing limitations from the specification into the claims.

Claims 83 and 84 fail to define an invention. It merely requires "rain" which is capable of being obtained by the methods of claims 1 and 23.

The preamble of claims 83 and 84 is inconsistent with that of their parent claims. For administrative purposes, applicant is required to present claims 83 and 84 in independent form.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 3752

8. Claims 83 and 84 are rejected under 35 U.S.C. 102(b) as being anticipated by Gensler (3,534,906).

Gensler teaches coalescence and precipitation of particles suspended in the atmosphere such as fog, i.e., production of rain or snow. See entire reference, in particular, column 1, lines 10-25; column 1, line 68 through column 2, line 30; column 2, lines 45-59; column 3, lines 5-30.

Therefore, the rain of Gensler is capable of being obtained by applicant's claims 1 and 23.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 3, 5, 6, 7, 9, 10, 14, 15, 21, 23, 25, 27, 28, 29, 31, 36, 37, 41, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gensler (3,534,906) in view of Rembaum et al. (3,898,188).

Gensler discloses a method of controlling atmospheric conditions including:

determining a size distribution of water droplets in a portion of the atmosphere (column 3, lines 5-15);

providing a predetermined amount of seeding material (polyelectrolytes; column 2, lines 4-17);

providing a predetermined charge magnitude (percent aqueous solution of polyethylenimine; column 3, lines 15-20) determined by collision model (density of fog); seeding said charged seeding elements (column 2, lines 60-72).

Gensler differs from what is being claimed in providing uncharged seeding elements and electrically charging the uncharged seeding elements. Gensler teaches cationic, anionic and hydrophilic polyelectrolytes to induce coalescence (column 2, lines 5-10; column 2, lines 32-45). Gensler does not teach charging uncharged polyelectrolytes to produce the cationic, anionic or hydrophilic polyelectrolytes.

Rembaum teaches, in column 4, lines 15-62, using insoluble monomer (hydrophobic, uncharged) to produce high charge products.

It would have been obvious to a person having ordinary skill in the art at the time of the invention to have produced charged polyelectrolytes from uncharged polyelectrolytes in the method of Gensler using the procedure of Rembaum to reduce cost by using existing methods.

Regarding claims 14, 15, 36, 37:

Gensler in view of Rembaum discloses the limitations of the claimed invention with the exception of the size and charge of the seeding elements. Gensler teaches to seeding elements having molecular weight of about 100,000. Gensler's charge is determined by the specific charged polyelectrolyte and its size. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided seeding element size of 0.1-20 microns and charge of $\pm 10^{-16}$ Coulomb to $\pm 10^{-12}$ Coulomb, since it has been held that where the general conditions of a claim are

Art Unit: 3752

disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher S. Kim whose telephone number is (571) 272-4905. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Shaver can be reached on (571) 272-4720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher S. Kim/
Primary Examiner, Art Unit 3752

Art Unit: 3752

CK